

Claims

1. Laser processing machine for processing workpieces using a laser beam (2), with a telescope (1) for widening the laser beam (2) which comprises an ellipsoidal mirror (3) and a paraboloidal mirror (4), characterized in that the axes of rotation (6) of the ellipsoidal mirror (3) and of the paraboloidal mirror (4) extend parallel, in particular collinear, to each other.
2. Laser processing machine according to claim 1, characterized in that the focus of the paraboloidal mirror (4) coincides with a focus of the ellipsoidal mirror (3).
3. Laser processing machine according to claim 1 or 2, characterized in that the ellipsoidal mirror (3) and the paraboloidal mirror (4) are not adjustable relative to each other.
4. Laser processing machine according to claim 3, characterized in that the ellipsoidal mirror (3) and the paraboloidal mirror (4) are fixed onto a common carrier element (12).
5. Laser processing machine according to any one of the preceding claims, characterized in that the optical axes (10, 9) of the laser beam (7, 8) which enters and exits the telescope (1) extend parallel to each other.
6. Laser processing machine according to claim 5, characterized in that the telescope (1) has an additional mirror (5) which adjusts the optical axis (10) of the laser beam (7) entering the telescope (1) parallel to the optical axis (9) of the laser beam (8) exiting the telescope (1).
7. Laser processing machine according to any one of the preceding claims, characterized in that the telescope (1) is movable parallel to the optical axis (10) of the laser beam (7) which enters the telescope (1).
8. Method for producing the reflecting surfaces of the ellipsoidal mirror (3) and paraboloidal mirror (4) of the telescope (1) of the laser processing machine

according to any one of the preceding claims, characterized in that the reflecting surfaces of the ellipsoidal mirror (3) and of the paraboloidal mirror (4) are produced in one single clamping using a processing machine whose axis of rotation extends collinear to the axes of rotation (6) of the two mirrors (3, 4) during production of the reflecting surfaces of the two mirrors (3, 4).